



Focus

Particulate Air Pollution

Air Pollution From Natural Events

Background

We usually associate air pollution with human activities - cars, industry, and wood burning are three of the largest air pollution sources. But natural events such as volcanic eruptions, earthquakes, wildfires, and dust storms can affect air quality, too. These natural events produce particulate matter, or airborne particles of dust and soot, which can cause health problems when we breathe them. The federal Environmental Protection Agency (EPA) regulates particulate matter through a health-based air quality standard.

The problem

Dust storms occur periodically in eastern Washington's Columbia Basin region when high winds combine with dry conditions. Such storms have occurred in this area for many years; Lewis and Clark experienced them during their expedition in 1804-1806. The winds during these storms can blow dust clouds more than 100 miles from the source of the dust. Dust storms have produced short-term air pollution levels more than ten times higher than the 24-hour standard for particulate matter.

EPA designates areas where particulate matter levels exceed the standard as "nonattainment areas." State and local governments must adopt plans to reduce the amount of air pollution in these areas in order to protect human health. These plans require controls for sources of particulate matter such as industry, motor vehicle emissions, and wood stoves. However, when high particulate matter levels are due solely to natural events such as dust storms, placing more controls on "human" activities will not significantly reduce the pollution. Because of this, the Department of Ecology requested a new EPA policy for air pollution from natural events in 1991, and was joined by nearly all western states.

EPA's policy on natural events

EPA adopted a new policy on natural events in June 1996. It gives states flexibility in meeting the particulate matter standard, while also providing increased public health protection. Under this policy, high winds are considered natural events if they occur over "natural" areas or areas with control in place for particulate matter. High winds are not considered natural events if they occur over areas where human activities contribute to particulate matter, and no controls are in place.

EPA will not designate an area impacted by natural events as nonattainment if a state develops and implements a plan to respond to public health effects. Ecology and local air pollution control agencies will develop plans to protect public health during natural events. These plans will include:

- public education about the harmful effects of particulate matter;
- public notification when air quality is or will be affected by natural events;
- programs to enable the general public and high risk individuals to minimize their exposure to air laden with particulate matter; and
- actions to reduce particulate matter (when possible) during natural events. These actions could include:

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- **For volcanoes and earthquakes:** Clean ash and dust deposits from areas such as streets where emissions could be stirred up into the air by vehicles.
- **For forest fires/wildfires:** Prohibit other open burning activities in the area for the duration of the forest fire or wildfire.
- **For dust storms:** Reduce the amount of loose, uncovered soil at construction sites, agricultural fields, and unpaved parking lots.

How does this policy affect Washington State?

Dust storms are the most common natural events causing air pollution in Washington. Spokane and Kennewick are the main areas in which air pollution is affected by dust storms.

Spokane is already a “moderate” nonattainment area for particulate matter because of sources other than natural events. However, because dust storms have caused a greater number of high particulate matter levels that exceed the standard in the Spokane area, EPA could have designated Spokane as a serious area rather than a moderate nonattainment area. This would have required additional, stricter controls on sources of particulate matter such as wood stoves and industry. Under EPA’s natural events policy, Spokane does not need to be classified as a serious nonattainment area for particulate matter because much of the particulate matter impacting it is due to natural events.

EPA had proposed to designate Kennewick as a nonattainment area because of the high levels of particulate matter caused by dust storms. Under the natural events policy, Kennewick will not be designated as a nonattainment area if a plan is developed to protect public health during natural events.

Future actions

Ecology, EPA, and agricultural agencies and growers are working together to develop soil conservation practices that will prevent and control wind erosion of soil from farms. This includes identifying areas that are most susceptible to wind erosion, and developing best management practices for agriculture.

For more information

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If you have special accommodation needs or require this document in alternative format, please contact Tami Dahlgren at Ecology's Air Quality Program, (360) 407-6830 (voice); or call (360) 407-6006 (TDD only).